

Profile

Ph.D. candidate in Computer Science focusing on reinforcement learning, supervised learning, computer vision, and generative/LLM-based methods. I build modularized explainable, environment-aware AI systems that integrate perception, control, and optimization for real-world environments.

Education

New Jersey Institute of Technology	2021 – 2027 (expected)
Ph.D. in Computer Science	CGPA: 4.0
Advisor: Shivvrat Arya (currently on trial); Jason T. L. Wang (previous)	
New Jersey Institute of Technology	2020 – 2021
M.S. in Computer Science	CGPA: 3.9

Technical Skills

Programming: Python (primary), C++ (strong), Java, Bash/Shell, SQL
ML Frameworks: PyTorch, TensorFlow, JAX, Scikit-learn, OpenCV, CUDA; Distributed Training (DDP)
ML Techniques: Transformers, LLMs, Deep RL (DQN/PPO), GNNs, Attention Models, Representation Learning; Generative Models (Diffusion, LoRA, NeRF/Gaussian Splatting); Uncertainty Modeling
Domains: Computer Vision, Generative Modeling, Traffic Simulation, Sequential Decision-Making, Probabilistic Modeling, Combinatorial Optimization
Tools: Linux, Git, Docker, Weights & Biases, TensorBoard, LaTeX

Research and Projects

VisionLight: RL for Video-Based Traffic Signal Control	2024 – 2025
<ul style="list-style-type: none">Built image-based traffic agent using surveillance camera video with a dynamic flow-aware attention module in CARLA.Implemented a scalable multi-GPU training pipeline for high-throughput learning.Achieved an average 56.8% improvement over state-of-the-art baselines across key traffic efficiency metrics.	
Flow-Aware Uncertainty Modeling for Traffic Control	2024 – 2025
<ul style="list-style-type: none">Developed image-based entropic attention to estimate dynamic flow change uncertainty in traffic simulation.Improved policy performance by 46.2% and significantly stabilized training when integrated into VisionLight.	
RNA Label Inference with Graph Neural Networks	2022
<ul style="list-style-type: none">Designed a GNN-based model to infer missing RNA sequence labels from structural graph relationships.Enhanced dataset consistency through graph-driven embedding propagation.	
DQN Traffic Light Control with Structured Inputs	2022
<ul style="list-style-type: none">Developed a DQN-based traffic controller trained in SUMO using structured intersection features and real-world data.Achieved 78% performance improvement compared to a stationary fixed-duration traffic signal.	
Intense Solar Flare Prediction using Transformers	2021
<ul style="list-style-type: none">Built a transformer model for intense flare prediction with a magnetogram abnormality-aware module.Achieved 61.9% accuracy and uncovered key single-polarity magnetic patterns associated with intense flares.	
Other Projects: YOLO Aim-Assist System, XPBD cloth simulation, PBR renderer, evolutionary image reconstruction, Android messaging app.	

Publication

Y. Abdulllah, J. Wang, P. Bose, **G. Zhang**, et al. (2022).
Forecasting the Disturbance Storm Time Index with Bayesian Deep Learning, FLAIRS Conference Proceedings.

Experience

Instructor & TA, NJIT	2021 – Present
Teach CS114 and supported CS415; lead lectures/recitations/office hours, designed assignments/exams.	
Graphic Designer & Education Consultant, Zhongzhi Education	2017 – 2018
Created digital media content and provided academic and career planning support.	
Game Designer, JoyMeng Ltd.	2016 – 2017
Designed gameplay systems, level content, and player interaction scenarios in Unity.	